FARMERS' BULLETIN 1182
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FARM INVENTORIES

ANNUAL PROPERTY LISTS, or inventories, are of practical value to the farmer in many ways:

If progress is being made they accurately gauge the extent of it. If the farmer is falling behind, the lists will emphasize this fact. Often when a man is discouraged and thinks he is making no progress, his inventories will reveal to him the fact that he is better off than he thought, and thus give him courage. Such lists are the basis of any system of farm accounting that may be established.

The various uses of farm inventories are explained in this bulletin, which presents complete and explicit directions as to how to make, use, and care for a farm property book.

Contribution from the Office of Farm Management and Farm Economics.
H. C. TAYLOR, Chief.

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FARM INVENTORIES.

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CONTENTS.

HOW MANY FARMERS know accurately their net financial worth, or how their investment in farm property is distributed? How many know, even approximately, how much they are progressing or falling behind each year? This information, which should be available to every farmer, as well as other facts of importance, can be obtained by preparing a list of farm property and farm debts every year.

Property lists, or inventories, as they are called, are not difficult to make, and are of great value to any farmer who is striving to better his condition, overcome obstacles to success, and place his business affairs on a secure foundation. To drift along, year after year, not knowing whether towards success or failure, is not the practice of business men. The farmer, as a business man, should know which way he is going.

Where farm records or accounts of any kind are kept, the inventory or property list is indispensable. It is the most valuable of all farm records, and is the starting point in any system of farm accounts. It helps to adjust the data set forth in other records, and without it reliable figures as to profits and losses can not be obtained from any records.

To gauge progress by increase in cash in hand, or to measure loss by additional debts incurred, without taking into consideration decreases or increases in the value of all property owned, is to invite false conclusions. The storekeeper is well aware of these facts, and his annual "stock taking" is nothing more or less than the making of an inventory or list of property, without which he is lacking accurate information concerning his profits and losses. A business man, lacking the facts as to the value of his property, year by year, can form no accurate estimates as to how he stands financially, no matter

what other records he may have. This is as true for the farmer as for any other business man. His increase in cash may be due to his having sold property which he had on hand from the year before. The increase in debts may be due to improvements made, or increased quantities of unsold crops and stock on hand, that make the actual net worth of his entire property greater than it was the year before.

Some farmers may know approximately the total value of their property, but it is doubtful if there are many whose eyes would not be opened by the facts set forth in a complete list. Even those who can make fairly accurate estimates of what they are worth can not make use of such estimates as they could of the full, complete, and accurate written schedules of the facts.

Before attempting to make and use an inventory it is well to have at least some knowledge of the principles involved. Unless the list is complete and made with sufficient care as to accuracy in placing values, it can not be of the greatest usefulness. Although no special kind of book or form is essential to success in the making of an inventory, yet a method is advisable that will expedite the making of the lists both at the start and in subsequent years.

This bulletin has been prepared to illustrate convenient inventory record books and methods of listing the property; to explain how to go about the work; what descriptive data it is advisable to record about the different kinds of property; how the items should be grouped in the list to allow for expansion in the number from year to year; what principles and points are to be kept in mind when appraising or placing values; how to sum up completely the years' lists; how to lessen the work of making subsequent lists; how to use the data, and how to care for the book.

HOW TO PREPARE A FARM INVENTORY BOOK.

The farm property book may be either bound in book form or carried in loose-leaf style. Both forms have their advantages and drawbacks and each one must decide for himself which kind best suits his needs. The bound book is more permanent in form and is cheaper in first cost, but it lacks complete flexibility, since a page in an account book of usual size allows only space enough for a few years' lists, and the entries have to be more or less cramped. The loose-leaf method overcomes most of the objections to the bound book, but the books are more expensive and lack the permanence of binding which is a good thing to have in a record which will become permanent.

A practical plan which overcomes some of the objections to both kinds of record book and saves considerable labor is to make use of the "long and short page" plan. This plan avoids entering name

and description of any item more than once for a number of years. Figure 1 shows how an ordinary blank book with "record" ruling, by hand ruling and cutting pages, can be made to serve as a farm property book for many years. Such a book can be purchased at any stationer's for a small sum. The book illustrated has 200 pages, each 7½ by 12⅛ inches, and costs from $1 to $2. By using the plan suggested it would do for 30 to 40 years' lists on most farms.

Figure 2 shows how loose sheets may be prepared and bound for use as a property book. While the ruling and printing of these sheets would be more expensive than the cost of the bound book shown in

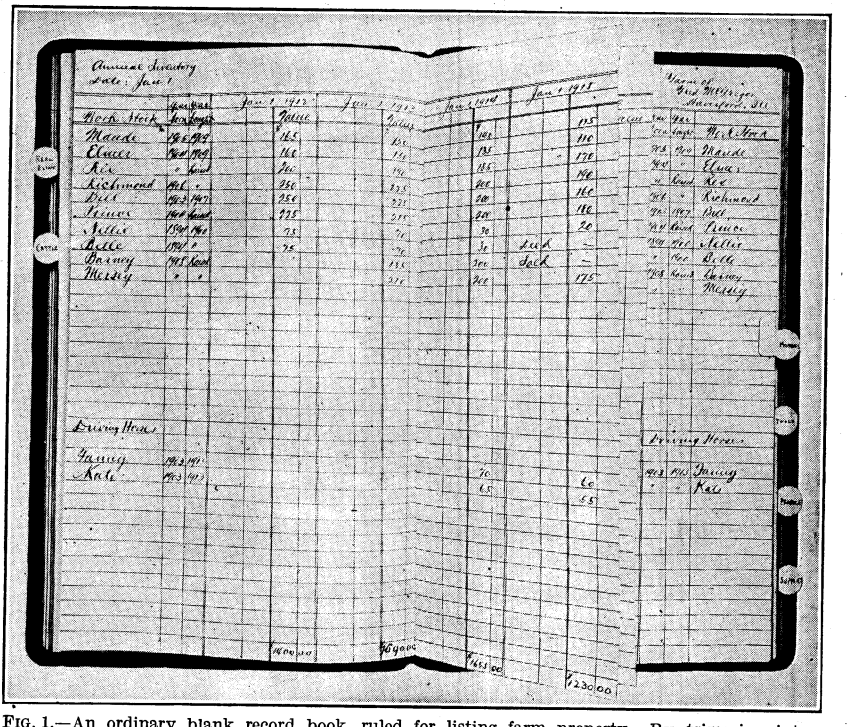

FIG. 1.—An ordinary blank record book, ruled for listing farm property. By trimming intermediate leaves, recopying is avoided for many years.

figure 1, the printed loose-leaf feature obviates all hand ruling, prevents congestion or cramping of the data, and preserves perfectly the continuity of the record. Each item is listed but once and the extra short sheets for subsequent years are inserted as needed. As in the bound book, the ends of all the sheets but that containing the items and descriptive data are cut back and by this means recopying is avoided. To the uninitiated it may seem that the book illustrated in figure 2 is rather reversed from the way most people are used to handle accounts, because the descriptive matter is at the right-hand side of the page. This is much better

than having the book open from left to right, thus having the roll of the sheets under the right arm and wrist and in the way when making entries. The plan illustrated is best for a right-handed person. The sheets shown in figure 2 are 12 by 20 inches in size, and each takes care of the items of property listed thereon for six years' inventories. Ample space is allowed for the entries on sheets of this size. The original sheet and four short continuation sheets will be sufficient for the items listed on the original for 30 years' inventories. These loose sheets can be held in any suitable binder with the descriptive matter and binding at either end. The homemade "folder" illustrated in figure 3 is durable and adequate.

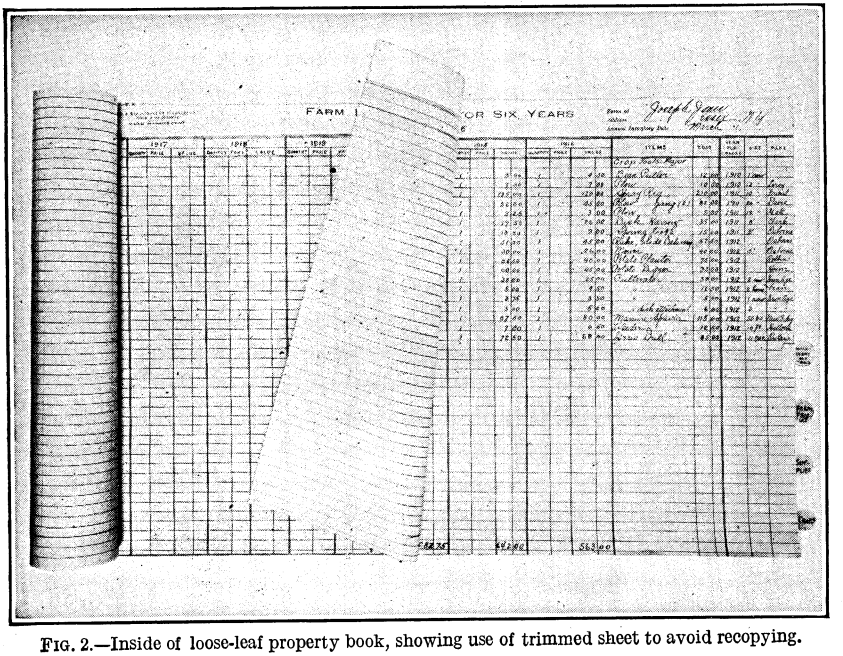

FIG. 2.—Inside of loose-leaf property book, showing use of trimmed sheet to avoid recopying.

It is made by a stiff pasteboard back, a little larger all around than the sheets, which, with the cover, are bound to the back by two paper fasteners of the cotter-pin type, through a strip of pasteboard on top of the sheets. A study of figure 3 will show exactly how this is done.

INDEXING.

To make reference easy to any sheet in the inventory, it will be found convenient to attach index tabs to the margin of the pages, as shown in figures 1, 2, and 3. These index tabs can be made of any suitable material. Those illustrated are made of paper, are conveniently gummed and ready to attach, and can be purchased cheaply at any stationer's.

BEST TIME TO MAKE AN INVENTORY.

There is no date in the calendar that is the one best time to make an inventory for everybody and under all circumstances. Each one must decide for himself the date most convenient. In deciding on a date the most important consideration is to select a time of the year before the season's work in the field begins. It will save trouble in the estimating of the quantities of farm produce on hand if the date is made as late in the spring as possible before field work begins, and when the supply of produce left over is low.

Although any day will do, it is best to select the first day of some month, and a fairly good guide in any section will be the date upon

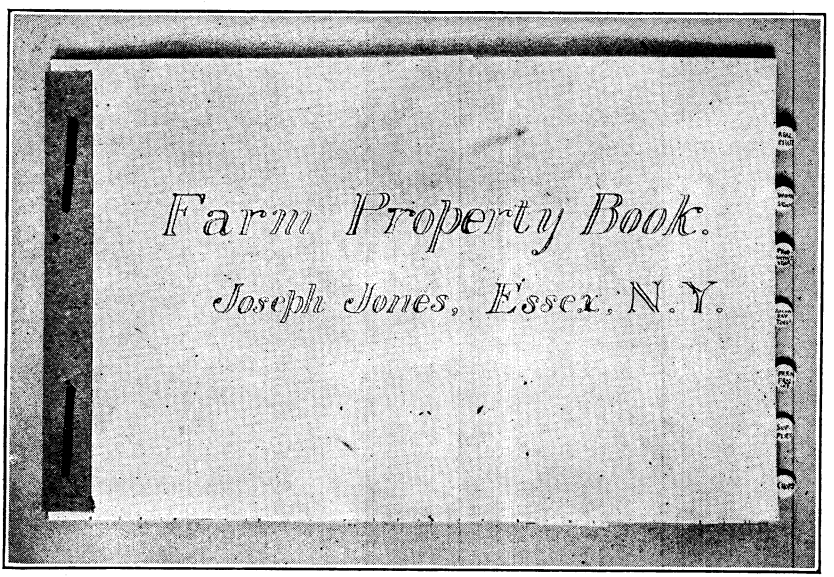

FIG. 3.—A homemade inventory book, containing sheets illustrated in figure 2.

which tenants customarily change farms. The best inventory date may vary all the way from January 1, in the Cotton Belt, to April 1, in New England, and for special farms special dates are often required.

HOW TO LIST PROPERTY.

If no list of the farm property has ever been made, it is well to start operations by going over the farm, field by field, and building by building, taking each item as it is found. Thus nothing will be missed. The listing can be done in any memorandum book or on loose sheets of paper. Two people can do this with greater facility than one, especially in barns, tool houses, and like places where many articles are found. One person can search out the various pieces of property, calling out each item in turn, to be set down on the list

by the other. The classifying and appraising can be done at the same time, if desired, by listing the items coming under each class of property on separate pages or sheets, but for the most part classification and appraisal can best be done within doors as the items are being copied into the property book. In some cases a more exact appraisal may perhaps be made as the item is listed, but it is not necessary for the average man to have each item of his property in actual sight in order to give it careful appraisal. It is necessary, however, to have the items actually in sight when they are being listed, as otherwise some of them surely will be omitted. Descriptive information regarding each item should be set down as the listing is being done, for identification purposes, as hereafter explained.

COPYING TO PROPERTY BOOK.

The copying of the listed items to the property book and classifying them at the same time can be most easily done by having one person read off the items as listed and another turn the pages of the book and enter the data under proper classified headings. This work should be done carefully, and at the end of each group plenty of room should be left for listing any new items of the same class that may be acquired in the years to come. In the following pages will be found fully detailed suggestions as to the best way to classify or group the many items, also how to apportion the items to the pages of the property book. Appendix A sets forth a fully detailed inventory from a New York farm, which merits careful study.

DESCRIPTIVE DATA.

It will be noticed that there are three narrow columns on the forms shown in figures 1 and 2, next to the wide column provided for listing the items. These three columns are to be used to note certain descriptive data concerning certain classes of property.

The descriptive data will depend on the kind of property. For the land, the year of purchase and the first cost should be recorded. Each building or improvement should be accompanied by notes as to the year erected and the first cost. For the work animals and any other stock listed by name, the data should show the year born or bought, and the first cost, if bought. For each implement listed separately there should be a record of the year bought, the first cost, and the size or working width. The make of the implement may also be set down. Such data will prove of value should the inventories be used in an accounting way, and in any case will be well worth the recording, as in going back over the lists of previous years descriptive data will be found quite useful in fully identifying many of the items.

CLASSIFYING AND APPRAISING THE PROPERTY ITEMS.

The various items in the list of farm property must be classified into groups. This is necessary for convenience, ease of reference, subsequent identification of items, and to secure the figures as to capital invested in each kind of farm property.

The allotment of pages in the inventory book to each group or kind of property must be made carefully in order that there may be no great waste of space, and yet ample room allowed for listing additional similar items acquired in the years to come. The various classes of property will need space in the book in accordance with their differing characteristics.

The appraising, or placing of values on all the items that go to make up the farm property list, will require careful thought and consistent action. Diverse conditions and principles are involved in the appraisal of different kinds of property, and these will therefore be discussed at some length.

RESOURCES OR ASSETS.

All property *owned* comes under the head of resources or assets. The resources may be divided into two subdivisions known as *physical* or tangible property and *financial* or intangible property. These are the technical terms used in everyday business, and their meaning should be fully grasped, as they refer to entirely distinct kinds of property, the handling of which in an inventory is governed by entirely different principles. The value of the physical property must be estimated and appraised; the financial property has a *face value*, which under any conditions ordinarily met with on the farm needs no appraisal. The physical property may be grouped under the following heads: Land; buildings; other permanent improvements; work stock; cattle; swine; sheep; poultry; machinery and tools; farm produce; farm supplies; growing crops. The financial items include cash on hand, cash in bank, accounts receivable, and notes receivable. By "receivable" is meant debts owing *to the farm*. All these classes of property will now be taken up in turn.

LAND.

It is not necessary to discuss in this bulletin in any but the briefest and most casual manner the theoretical methods of correct land valuation. The main thing is to adhere to whatever principle is adopted, so as to eliminate all fluctuations due to variations in method or basis used. The objects of valuation of the physical property (including land) for farm inventory purposes are, generally speaking, threefold; (1) to establish a basis for determining financial worth at recurrent periods, thus reflecting increases or decreases in net worth;

(2) to ascertain the distribution of capital invested; that is, the amount of money tied up in each class of property; (3) to serve as a basis in farm cost accounts for charging depreciation and interest on investment. By bearing in mind the foregoing, the necessity is readily seen for sticking to some definite method of valuation. In the valuation of land there are at least three bases that may be considered: (1) Cost; (2) sale or market value; (3) capitalized rent. The difficulty with the cost basis in appraising farm lands is that it fails to fulfill completely any one of the three objects of valuation as hereinbefore specified. However proper the cost basis is in corporation accounting, where it is generally accepted and used, it fails when applied to farm land valuation. This is partly because of the personal element present in farm accounting and absent in corporation accounting. If the land value be based on cost it will certainly not reflect the farmer's present net worth. In many cases land cost its present owners a nominal sum only. Again, many farms have been inherited, thus costing their present owners nothing. For these reasons, generally speaking, the cost basis is not acceptable in land valuations for farm inventory purposes. Where the land has recently been purchased, however, cost is the best appraisal basis.

The sale or market-value basis will doubtless prove the most practical in the majority of cases, but certain precautions are necessary in applying it. If this method is adopted the land should be appraised as nearly as possible at a figure representative of the current price in the neighborhood of the same kind and quality of land. By current price is not meant a forced sale price, nor yet a fancy suburban lot valuation, but such a price as the more recent sales to farmers have shown to be the real market value of land in the locality. Almost every farm will include areas of different value per acre. These should be separately priced in accordance with their values, and, to facilitate future appraisals, each field or parcel of land may be designated by a letter or number for purposes of identification. The number of acres in each kind of land, multiplied by its appraised value per acre, will give, when footed up, the total appraised value of the land. (See sample inventory, Appendix A.)

It is sometimes rather difficult to judge of the actual market value of farm land. Especially is this true in regions where there is great activity in the land market, and also in those sections of the country where there is little or no buying and selling of farm lands. In the former case the element of speculation and in the latter the scarcity of sales prevents the taking of sales prices as a guide.

The third basis, capitalized rent, is probably the best index of the intrinsic value of land. Dr. H. C. Taylor[1] in his recent work on

[1] Agricultural Economics, 1919, pp. 204–205.

Agricultural Economics says: "The net rent, or the share of the gross returns which, under conditions of free competition, is credited to land, above what is necessary to keep the land intact, is the starting point for figuring the value of a piece of land." He further says that this net rent divided by the rate of discount which "reflects the prevailing premium on the present" is the simple mathematical method of finding the value of a piece of land on this basis. Thus, "If the net annual income derived from a piece of land is $6 per acre and the rate of discount is 5 per cent, the present capital value of the land would be $120 per acre," or $6 divided by 0.05.

Where this method can be applied it is probably the most accurate one that can be used from an economic standpoint. Its main difficulty from the standpoint of farm inventorying is its application where the land is being farmed by its owner. The earnings are produced by the entire farm property, land, buildings, stock, equipment together with the labor employed, and the difficulty lies in allocating to each of these factors of production its true share of the earnings. For instance, a field produces certain net earnings above all costs. By what means in reach of the practical farmer is the share of earnings attributable to each factor to be set apart? Another practical difficulty lies in the fact that crops are not uniformly productive, neither are seasons, and the net rent would be more variable and inconstant, both up and down, than the market value basis, which usually follows a general trend, either upwards or downwards.

Thus while it is undoubtedly true that the net rent over a period of years is an excellent if not the best index of its actual value, there are practical difficulties of application that render its use for this farm inventory purpose unavailable in the majority of cases.

In appraising the farm land, especially if cost accounts are to be carried, it is desirable that each kind of land (as crop land, permanent pasture, woodland, etc.) be valued as nearly as possible at its relative value as compared with the other kinds. In some cases it has been found expedient to go still further and assign to each separate piece of land on the farm its own value per acre. (See Appendix A.) The value per acre of each kind of land multiplied by its area will thus give the total land value as appraised by this method.

This method is a good one to follow, for on practically all farms there are found areas of different value per acre. Thus some tillable land may be high in fertility and easily worked, being for this reason worth considerably more per acre than other tillable land of lower fertility or less desirable physical characteristics. Again, many farms include areas unfit for tillage by reason of swampy, rocky, or very hilly topography. Woodland and brushy areas are found in

nearly all agricultural regions. In some cases the woodland is worth more, in others less, than the best tillable land, depending on the section of the country and the quality of the timber. To appraise all these at a uniform rate per acre would not be in accordance with the facts, and it is the facts that are desired when making an inventory.

ORCHARDS AND OTHER PERENNIAL CROPS.

The appraisal of orchards and similar semipermanent crops, such as asparagus beds, berry plantations, etc., is best made as one with the land they occupy. They are, strictly speaking, a part of the make-up of the land value, for, if the land be sold, they are legally a part of the sale and go with the land. In appraising land carrying such crops the value should not be overestimated on the basis of expected returns, however certain it may appear they will be. Conservatism should here, as elsewhere, be the rule. The same basis as for any other land may be used or, if the costs of bringing such a crop to bearing age are known, they may be used in this connection by adding to the value of the bare land the costs, year by year, to bring the crop to full bearing age. The full value should be maintained during the prime productive life, and then, as productivity wanes, the value should be gradually decreased until, when the fruitfulness of the crop ceases, it is again reduced to the value of the bare land.

BUILDING AND OTHER IMPROVEMENTS.

Each building or improvement (water supply, lighting system, etc.), should be listed separately. (See sample inventory, Appendix A). It is best not to list separately other land improvements, such as fences, drainage, and the like, but their value should be included in the appraisement of the land so improved.

One of the most perplexing appraisals will be that of the farm buildings and other improvements. The buildings and improvements are bought and sold with the land, and it may often appear difficult to give them a value separate from the land. This is not so difficult as it may seem, and it is of importance that they be separately valued, as only by this means can all the uses of the inventory be realized. Furthermore, this is necessary in order that new building improvement costs be correctly inventoried and depreciation be adequately provided for.

There are two bases which may be employed in appraising buildings and improvements, (1) original cost of construction, and (2) estimated cost to replace at present prices. In either case allowance should be made for depreciation from the date of erection to the inventory date.

To illustrate, assume a barn to have been erected in 1880 which cost then $800, but to-day would require $2,000 to build. The barn is in good repair and has an estimated life of 20 years longer before it will have to be replaced. On the original cost basis the barn would be valued to-day (1920) at $267, while if the replacement basis is used the present value would be $667, or one-third of the total in each case, as it is estimated that it has one-third of its useful life left. The question of the salvage value at the end of useful life sometimes enters into such computations, but this question is ordinarily ignored in farm inventorying for the reasons that it is usually a negligible amount, and that the actual useful life remaining is largely a matter of guesswork. There are usually no extensive, accurate data on which such estimates can be carefully based.

The original cost basis is, doubtless, the safest and most conservative for general use in valuing buildings, but in many cases and for some reasons the replacement basis may be found preferable. Thus, if cost accounts are to be carried on, the replacement basis seems to be more justifiable in order that the cost figures may bear depreciation charges commensurate with the present high scale of prices. All building materials have advanced so greatly in cost in the last few years that the original cost of any building, except one very recently erected, can not be considered an accurate guide to its true value.

Under no circumstances, however, should the basis of values be shifted from year to year, but, when once decided on and established, should be maintained until price levels have materially changed.

When estimating depreciation, careful examination is to be recommended. Sometimes a building apparently in perfect condition has been found to be quite out of repair by reason of unseen depreciation due to rotted sills, posts, etc.

When the appraised values of the various kinds of land, of the several buildings, and of the other improvements are footed up, it will nearly always occur that the total appraised valuation by the sundry items will not agree with the cost or appraised value of the farm as a whole. It would be manifestly inaccurate in such a case to leave the total itemized value as it is, and yet it is desired to have the data in itemized form. Here it becomes necessary to divide up the "whole farm" value into proportionate values for each item, as indicated by the detailed appraisal. This is more readily done by placing the items in a column with the total appraised value at its foot. Alongside of this column is another for holding the adjusted values and at the foot of this second column is placed the "whole farm" value to which it is desired to adjust the item values. The ratio of values or the adjustment percentage can be found by dividing the total "whole farm" value by the sum of the itemized values.

This percentage figure, multiplied by each item in the appraised values, adjusts each itemized value to the total value. To illustrate:

Items.	Appraised item values.	Adjusted values.
Fields A and F, tillable land, 80 acres	$8,000	$7,361
Field C, tillable land (poor), 20 acres	1,000	920
Fields B and E, permanent pasture, 20 acres	800	736
Farmstead, woods, roads, and lanes, 5 acres	300	276
Dwelling	1,500	1,381
Tenant house	400	368
Barn	850	782
Calf shed	50	46
Corncrib	75	69
Henhouse	10	9
Water-supply system	350	322
Lighting system	250	230
Total appraised value by items	13,585	.....
Total "whole farm" value	.....	12,500

In the above case the "whole farm" value is found to be 92/100 of the total of appraised item values (12,500 divided by 13,585). The figures for each item in the column of adjusted values are found by multiplying each item value by 92 and dividing by 100.

One page in the farm property book ordinarily suffices for the list of land, buildings, and improvements.

LIVE STOCK.

Live stock on the farm ordinarily comes under three heads, namely, work stock, production herds and flocks, and special lots such as steers, hogs, or lambs bought for fattening and resale. In each case, as for the farm land, there is the alternative of using the cost basis or the market value basis for the appraising of values. As recommended in that case, so here, considering all the objects for which a farm inventory is used or to be used, the market value basis is the most acceptable. It must be understood that market value *at the farm*, or "farm value," as it is commonly called, is meant in this connection. That is value at market point *less* probable cost of getting to market. In no case should live stock be valued at full value at the market point.

Work stock.—The appraisal of the work stock should not give much trouble. Most farmers know pretty well what a horse or mule is worth after owning it a while. It is well to devote one page to the work and driving animals and colts, which by reason of being a more or less permanent part of the farm plant should be listed separately by name. As colts raised are broken and put to work on the farm, they can be dropped from the list of colts and carried to the work stock list. Several blank lines should follow the list of each.

Productive live stock.[2]—This list will include:

Cattle: List each kind of cattle separately, as cows, heifers, bulls, steers, calves, yearlings, and 2-year-olds.

Colts: List as suckling colts, yearlings, 2-year-olds, etc.

Hogs: List separately breeding sows, boars, feeders, shoats, pigs.

Sheep: List separately ewes, rams, wethers, and lambs.

Poultry: List separately hens, roosters, chicks, turkeys, ducks, geese, and guineas.

Bees.

If more than one breed or type of animal is kept it may be advisable to separate the above groups under the different types or breeds, as "dairy cows," "beef breeding cows," "Holstein calves," "Shorthorn calves," etc. Where dairy or registered breeding stock is carried it is advisable to list all the cows, bulls, and young stock individually by name, as is done with work stock, so as to facilitate identification and appraisal year after year.

Special lots.—There is a radical difference between the principle of listing semipermanent stock and that of listing hogs, steers, and the like, which are kept only a relatively short time. It is necessary to leave considerable blank spaces on the sheets listing individual animals, for as they are sold or otherwise disposed of the others that take their places will need to be listed on the same sheet in order to preserve the continuity of the inventory. The list of stock bunched according to kind and age will, however, stand indefinitely, since the individual animals that make up these bunches may come and go without requiring any change in the listing. Such a list should simply show after each group the number on hand and the total value of the entire bunch. The important thing to be remembered here is that a few blank lines should be left after each distinct class, such as cattle, swine, poultry, etc., to allow for occasional changes that may occur in the make-up of the live stock carried.

A method of valuation practiced on stock farms is to weigh the different bunches, multiply the total weight of each by the current market price, and subtract the probable marketing charges. The remainder shows the market value on the farm.

The number of pages in the property book to be allotted to productive live stock lists will depend greatly on the size and type of farm and the kind of stock carried. Generally a page will suffice for all the bunched animals. Where some of the cattle are individually listed it would be well to use one page for the bunched animals and one or more pages as needed for the individually listed cattle.

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[2] By this term is meant all classes of stock which are maintained for the production of income either through sales of stock and stock products or by increases in value.

MACHINERY AND TOOLS.

The appraisal of the farm implements presents quite a different problem from that of any other class of property on the farm. Market prices are of little use here in determining actual values. A farm implement after only a few months' use has a cash sale value considerably less than what it is actually worth to the farm. There is one rule for appraising these values that has been found to work out well in practice, namely, from the first cost deduct a sum sufficient to cover wear and tear up to the inventory date. To do this, the probable useful life of the implement must be considered. For instance, in appraising the value of a plow, the first cost of which was $12, and which has been used for 12 years and has about 3 years more of useful life, the value would be placed at 3/15, or 1/5 of the first cost, that is to say $2.40. In arriving at first cost, the price paid and the cost of getting the implement to the farm and setting it up are to be added, thus making the total first cost.

This is the most numerous class of property items to list. The best way is to treat every separate implement, machine, or tool as a distinct item on the inventory. In the case of such minor tools as shovels, hammers, axes, and the like, where more than one of the same kind is owned, they can be listed together, followed by the number owned, as "hammers, claw, 3"; "shovels, long-handled, 2," etc. All major implements should consistently be itemized separately to identify them for future lists, as, "Mower, Deering 4½-foot cut," "Mower, McCormick 5-foot cut," etc.

It may seem to many that the listing of each separate tool is an unnecessary burden of detail, but there are at least three good reasons why this should be done. First, the values can thus be more accurately placed; second, the list is made but once for each tool and future appraisals are more easily consummated; third, the loan, loss, or misplacement of tools is readily brought to mind and checked up. Farmers frequently lose valuable implements by lending them out and never checking up their lists of property. A case of a farmer in New York illustrates this pointedly. He used to lend his fanning mill to his neighbors and on one occasion when he wanted to clean his own grain, it was not to be found, either on his own place or at any of the neighbors. It finally developed that it had been sold by auction at a sale of the effects of a deceased neighbor. No one remembered who had bought it, hence it was a total loss. Similar losses are avoided by farmers who have formed the habit of making annual inventories. On many farms both the number and value of small tools are maintained about the same year by year, the new small tools bought each year representing a year's depreciation, so that on these farms the listing and appraisal of small tools may be

done by groups without making much difference. It is recommended, however, that in spite of the time required an exact itemized list be made of each tool, large or small. The grouping idea is suggested merely to show how the listing may be done when circumstances seem to make an itemized list undesirable, as may sometimes be the case on quite small farms or on those where a simple type of agriculture is followed.

Making this list of the tools will appear to many a much more tedious job than it actually is. On a 320-acre general grain and stock farm in Iowa, where seed growing and cleaning is made a specialty and a thrashing outfit handled, a farm where about every implement and tool is represented that will be found on any farm, the detailed list showed 301 separate items, from a $1,100 thrashing outfit to a 5-cent file. In spite of this extraordinarily long list, the inventorying was not exceptionally laborious, consuming less than one day's time, and after the list was once made the succeeding year's lists were checked up with facility.

It will systematize the work if in copying this list to the apportioning pages in the farm property book subclassifications be made in accordance with the uses of the tools, entering first under each class the major items, and then, after leaving a number of blank lines, the minor tools. As a suggestion, the groupings illustrated in the sample inventory in Appendix A are offered.

These groups on a farm of average size should prove adequate, but where there are a great many items it will be useful to have the list still further subdivided. For instance, the live-stock tools may be classified by kind of stock, the crop implements by the different kinds of crops, and the general-purpose tools into "hauling," "shop," and such like groups. Where this is done certain items will be found that can not go under any one subgroup and must be included in a general-purpose subdivision at the end of each series of subdivisions.

The allotment of pages in the property book to the lists of machinery and tools will depend on how the items are grouped. On small farms, one or two pages may suffice for the entire list. Where the tools are classified into groups, each group should have a separate page, to allow for subsequent purchases, and where a great many items are to be listed, separate pages are advisable for the major and minor subclassifications under the same group.

FARM PRODUCE.

For farm produce the best appraisal basis is believed to be "farm value," or market value at the farm, that is, at market price less the estimated cost of marketing. Each product on hand at inventory

time should be listed, followed by a note as to kind and quantity on hand, and the unit of measurement, thus:

Corn, ear	bushels..	432
Hay, timothy	tons..	4½
Hay, mixed	do..	16

The task of making fairly accurate estimates of the quantities in bulk of such commodities as corn, wheat, hay, etc., may puzzle some who have never made such estimates. There are rules for closely approximating these, and in many instances farmers have their own methods by which they make surprisingly close estimates. For the benefit of those inexperienced in such estimates, Appendix B gives simple rules for estimating quantities of produce in bulk.

SUPPLIES.

On every farm at inventory time there will be found a miscellaneous collection of all kinds of supplies, such as purchased feeds, seed, fertilizer, twine, nails, lumber, etc. These, together with the amount of manure on hand, are all listed under the heading "Supplies." Nails, bolts, screws, and the like can well be listed as one item, regardless of varying sizes and kinds, giving the approximate number of pounds. Where a definite system of carrying such shop supplies is in use, as is the case on some of the well-organized, large farms, the quantities of the different items of this nature are easily counted or weighed and appraised with exactitude. This kind of property, like machinery and tools, has been bought by the farmer and should therefore be appraised at cost price *plus* any expense incurred in getting it to the farm. For example, if a ton of bran is bought for $44, $1.25 spent for freight on it, and 75 cents worth of man and horse labor needed to haul it from the station to the farm, the appraisal should be made at the rate of $46 per ton.

FALL AND WINTER CROP WORK.

This is an important part of the farm inventory, and one that is sometimes overlooked. Strictly speaking, it is not property in some parts of the country, but in other sections it is just as much property as a horse or cow. In most States, in the sale of tenant farms, the law requires that the tenant must be compensated for his work on any crops not yet harvested, even when no written lease is extant.

From an accounting standpoint it is indispensable that the value of the work done and supplies used on crops to be harvested in the coming season be taken into account. If a farmer sows each year about the same number of acres of winter wheat and other like crops, if he winter-plows similar areas year after year, in other words, if the inventories of the value of such expenditures of labor and money will amount to practically the same thing each year,

it may be allowable to omit them. But it is little trouble to include them, and even under such exceptional, unvarying conditions it is best to do so. The physical facts of such data, as number of acres plowed, or planted in each fall-sown crop (including quantities of seed, fertilizer, etc., used), will be of use for reference and are worth recording, even though the money values are not considered necessary to the accounts.

The items that go to make up the value of the fall and winter work on crops to be harvested in the coming year are labor (man, beast, and tractor), seed, fertilizer, and other supplies used thereon. In the absence of labor records on the farm, the labor cost of this item will have to be estimated, but as most farmers have a pretty fair idea of the time it takes to plow an acre of land or put in an acre of fall grain, this should not give much trouble.

On small and medium-sized farms the farm produce, supplies, and crop work may be listed on one page of the size shown in figures 1 and 2, and still leave room for future years. Where the items are numerous, separate pages should be used for each group. Dairy farms, especially those on which various feeding systems and rations are being tried out, may require an entire page for the concentrate feeds alone, as the list will vary from year to year.

GENERAL NOTES ON APPRAISING.

Good judgment, coupled with experience, should enable a farmer to come fairly close to the right figures. A middle course is the safest, since the results of an appraisal either far too high or far too low will be of little or no value. False appraisal, to make the figures show up well, is labor thrown away, since the one who indulges in this pastime is only fooling himself. Stick to facts. Use market values (except as explained for machinery and tools) *adding* expense of getting to the farm all those things the farmer buys, and *subtracting* the probable expense of marketing from the market value of all those things he has to sell.

FINANCIAL PROPERTY.

The foregoing discussion has covered all the property which is classed as physical, or tangible, and which needs to be appraised as to values. The property now to be considered is that which may be classed as intangible, or financial property, and consists of the amount of cash on hand and in bank, open accounts receivable, or amounts due the farm from other people or firms, and notes which the farmer holds on the inventory date. A farmer often owns other property such as stocks, bonds, life insurance policies, and other resources of the sort, but these do not pertain to the farm and do not

belong in a list of farm property. They may, however, be included if it is thought desirable to do so.

One page of the farm property book should be devoted to this list of financial property, listing the notes, open accounts, and cash, in regular order. It is well to leave some blank lines after both the list of notes and accounts, and to carry the cash on hand and in bank on the lower lines of the pages. In listing the notes and accounts some descriptive words should be added showing who owes the money, for what, when due, etc., as shown in the sample inventory in Appendix A.

LIABILITIES.

In no case should a list of liabilities (bills and accounts *owed by* the farm) be omitted from the inventory. Liabilities are an offset to the resources. They are a part of the make-up of the farm business and the proportion they bear to the resources indicates the degree of thriftiness of any business. A separate page in the property book should be devoted to the liabilities, and the items should be entered just as indicated for notes and accounts owing to the farm, giving the name of the person or firm to whom money is owed, whether note or open account, when due, for what the debt is owing, and the amount.

SUMMING UP.

When all the items with their valuations have been entered in the farm property book, all that is necessary to finish the job is to sum up the values. This is best done by adding each page separately and carrying these page totals to the last page of the list, where they may be conveniently added to obtain the grand total. It is not a good plan to carry forward each total to the top of the succeeding page. The totals become more and more cumbersome to handle, chances of error are multiplied, and in case extra sheets are at any time inserted, confusion may result. The liabilities are summed up in the same manner as the assets. (See Appendix A.)

NET WORTH.

When the sum of the liabilities is subtracted from that of the resources, the remainder is known as the net or present worth. By this is meant the net value to the owner of the farm property after all debts are accounted for, or, in other words, the net amount of capital invested in the farm business at the inventory date.

SUBSEQUENT ANNUAL LISTS.

Having made a fully detailed inventory for one year, the task of making subsequent annual lists is comparatively easy. There are certain particulars to be considered in the making of these subsequent lists which will now be explained and briefly discussed.

LAND.

Unless land has been bought or sold, the total acreage will remain unchanged. Clearing of woods or brushy areas and reclamation of wet lands may change the areas listed at different values, and therefore the total value. Any amounts expended in such improvements should ordinarily be added to the old to make the new values, but the value per acre should never be increased by such additions to a greater amount than the current price for such improved land. Increased or decreased value by reason of a general rise or decline in the price of land in the locality wherein the farm is located should be taken into account, but where the inventories are utilized as part of an accounting system, this increased or decreased value should not be included in the farm profits or losses, but should be shown separately as an unearned gain or loss.

BUILDINGS, WORK STOCK, MACHINERY AND TOOLS.

These three classes of property, with the land, make up what may be termed the farm plant. Just as a factory with its buildings, machinery, and rolling stock is spoken of as a manufacturing plant, so may that permanent part of the farm property used over and over again in the production of crops and stock be considered a manufacturing plant, and, similarly, these are subject to losses every year by weather, becoming out of-date, wear and tear, and other causes. This decrease in value must be taken into account in appraising farm property if an approximation to actual values is to be regularly maintained. As a general principle it may be said that all parts of the farm plant decrease in value year by year unless this decrease is offset by maintenance.

The land value will not ordinarily depreciate if the fertility of the soil is adequately maintained. Buildings properly erected depreciate in value very slowly, so gradually, in fact, that if kept in thorough repair their value will be maintained indefinitely. Where repairs of a permanent nature, such as a new roof, are made the inventory value may be necessarily increased. A rule for appraising well-built frame buildings which has given satisfactory results in practice is to deduct from the previous year's value 3 per cent on the cost of erection (or on estimated replacement cost if this basis is used), and to the remainder thus found add the cost of maintenance during the year just past.

The values of the machinery and tools may be appraised by deducting from the valuation of the previous year an amount expressed in terms of a given per cent on the first cost. The percentages to be deducted will, of course, vary for the different implements. The probable useful life of each implement will be the governing factor here, as explained in Appendix, C.

The decrease in value of the work animals, year by year, will be fully accounted for if their values are carefully appraised each year. Some of the younger animals, no doubt, will show an increase in value, as would naturally be the case up to a certain age.

PRODUCTIVE STOCK, FARM PRODUCE, SUPPLIES, FALL AND WINTER CROP WORK.

For the subsequent annual listing and appraisal of these classes of property, the method of procedure will be the same as in the original inventory.

CASH, NOTES AND ACCOUNTS RECEIVABLE, LIABILITIES, SUMMING UP, NET WORTH.

These are also handled in the subsequent inventories exactly as in the first instance.

ADDED ITEMS.

In making the subsequent lists there will be some additional items each year which have been acquired during the time since the preceding inventory was made. If a record of receipts and expenditures is kept, it is well to go over it just prior to the date of the inventory and make a list of all new items of property that have been acquired by purchase during the year which should go into the new inventory. By this means is avoided the chance of missing any of these new items. If no such record is kept, memory must serve instead.

USEFULNESS OF THE FARM PROPERTY BOOK.

Aside from the value of the data contained in a well-kept inventory in supplying complete information as to the value of the farm and its accessories, the distribution of the capital invested in the farm, and the net financial status of the farmer year by year, the data will prove useful in a variety of ways, in any one of which it will often repay the farmer for the time and work devoted to making the inventories. Some of these uses will be suggested.

AS AN INDEX OF PROGRESS OR RETROGRESSION.

A comparison of the net worth balances year by year will show whether financial progress is being made. Where this use is to be made of the figures it is usually necessary to make certain adjustments of the sums indicated by the inventories. For instance, if an outside investment, as stock in a creamery or other company, has been made from funds produced by the farm during the year, the amount so invested, not being included in the list of farm property, should, in measuring financial progress, be added to the figure representing the net worth at the end of the year. If an outside investment, as stocks or bonds owned, has returned dividends or has been

closed out and the money so received has gone into the farm business, this amount should be subtracted from the net worth to show just what gain or loss has occurred in the farm property during the year. To illustrate:

Net worth at the beginning of the year	$22,536.92
Net worth at the end of the year	22,390.25
Decrease in net worth	146.67
Outside investments made (bought stock)	500.00
Decrease in net worth (deduct)	146.67
Actual financial progress made	353.33

AS AN AID TO FARM ACCOUNTING.

Such figures as the foregoing are valuable as indicating the financial progress of the farmer as an individual, but in no case do they indicate the profit or loss made by farming. To get at this last figure it is necessary to know how much was spent for household and personal expenses, what the farm furnished to the family living, and to what extent the value of work done by the farmer and his family saved expenses to the farm. To illustrate, if the value of the house rent, milk, butter, eggs, meat, vegetables, fruit, etc., furnished the farm family by the farm is found to be $420, the amount of cash expended for the household and personal expenses of the farmer and his family $740, and the value of unpaid farm labor of the farmer and his family $485, the profit by farming would be found thus:

Financial progress made	$353.33
Value of supplies furnished (add)	420.00
Household and personal expense (add)	742.00
Total	1,515.33
Less value of unpaid farm labor	485.00
Profit by farming	1,030.33

Of course, in order to obtain the figures represented above, the records indicated must be kept, in addition to the farm property lists.

The foregoing is the simplest way known to get at the actual profit made or loss sustained by the farming operations. Of course if more detailed records are kept, or a system of cost accounts handled, the inventory figures are indispensable, and accordingly the value of the property lists is still greater.

AS A CREDIT SAFEGUARD.

When a fully detailed list of property is available the borrowing of money for farm purposes is made easier and less costly. In a case well known to the writer, the farmer takes every inventory to

his banker and together they go over it. By this means complete confidence is established, and this farmer, in a section where interest rates charged farmers actually amount to 8 per cent or more per annum, has had no difficulty in securing what money he needs to carry out his farm projects at a straight 6 per cent per annum, enabling him to pay cash for everything he buys and save money all along the line.

ADJUSTMENT OF FIRE LOSSES.

In case of fire or other losses covered by insurance the inventory becomes invaluable as an aid to quick and satisfactory adjustment of the losses sustained. In case of a general fire it becomes of incalculable value in this respect.

CARE OF THE BOOK.

Such a valuable asset as the farm inventory book should be the object of particular care. It always should be kept in a safe place where it can easily be saved in case of fire. It should be kept away from promiscuous handling or prying eyes, and should never be exhibited to anyone except in the necessary course of business, or to give accurate information to properly accredited representatives of the State and Federal Governments. Whenever it is so used, it should always be with the understanding that the information so furnished is to be held strictly confidential.

APPENDIX.

A. SAMPLE OF A COMPLETE FARM INVENTORY ON A 125-ACRE FARM IN WESTERN NEW YORK.

INVENTORY OF FARM PROPERTY ON THE PINE TREE FARM, MAR. 1, 1920.

Page of property book.	Property.	Quantity.	Price.	Value.
1	Land:			
	Field. A. Tillable.....acres	19.3	$96.00	$1,852.80
	B. Tillable.....do	19.4	96.00	1,862.40
	C. Young orchard.....do	4.9	150.00	735.00
	E. Tillable.....do	6.7	96.00	643.20
	F. Tillable.....do	4.57	96.00	438.72
	G. Tillable.....do	5.0	96.00	480.00
	H. Woodland.....do	22.6	40.00	904.00
	I. Bearing orchard.....do	3.83	300.00	1,149.00
	J. Tillable.....do	6.2	96.00	595.20
	K. Tillable.....do	15.7	96.00	1,507.20
	L. Tillable.....do	10.0	96.00	960.00
	N. Quince orchard.....do	.5	96.00	48.00
	Garden.....do	.35	96.00	33.60
	Roads, waste, etc. (no value placed)	6.14		
	Total value of land			11,209.12
1	Buildings:			
	Dwelling, built 1884, size 35 by 50			2,500.00
	Tenant house, built 1864, size 35 by 25			788.00
	Barn, built 1870, size 90 by 20			2,900.00
	Potato storage, built 1913, cost $1,825			1,700.00
	Shop, built 1908			200.00
	Henhouse, built 1908			178.00
	Ice house (old)			18.00
	Smokehouse (old)			45.00
	Hog shelter built 1914, cost $25			20.00
	Total value of buildings			8,349.00
	Other improvements:			
	Waterworks (including windmill), built 1908			265.00
2	Work stock:			
	Dolly, black mare, born 1903, cost $250			125.00
	Molly, gray mare, born 1904, cost $250			125.00
	Jim, bay horse, born 1904, cost $200			60.00
	Tabe, bay horse, born 1903, cost 200			90.00
	Total value of work stock			400.00
2	Cattle:			
	Cows	3		300.00
	Heifers	2		115.00
	Total value of cattle			415.00
2	Swine:			
	Brood sows	4		200.00
	Boars	2		100.00
	Shoats	28		550.00
	Pigs	8		50.00
	Total value of swine			900.00
2	Poultry, hens and roosters	52		80.00
3	Equipment (implements, tools, etc.):			
	Horse equipment—			
	Harness, double, heavy.....sets	2		45.00
	Harness, double, light.....do	1		3.00
	Harness, single, light.....do	1		5.00
	Collars	5		8.00
	Fly nets.....sets	3		4.50
	Whiffletrees, double and single.....do	2		2.00

A. *Sample of a complete farm inventory on a 125-acre farm in western New York*—Con.

INVENTORY OF FARM PROPERTY ON THE PINE TREE FARM, MAR. 1, 1920.

Page of property book.	Property.	Quantity.	Price.	Value.
3	Equipment (implements, tools, etc.)—Continued.			
	Horse equipment—Continued.			
	Whiffletrees, triple ...sets	1		$1.50
	Blankets, horse	2		2.00
	Broom, stable	1		.25
	Currycombs and brushes	3		.80
	Total value horse equipment			72.05
3	Cattle equipment—			
	Separator, bought 1915, cost $55.75			30 00
	Butter worker, bought 1915, cost $3.70			1.75
	Fodder cutter, bought 1917, cost $25			19.00
	Milk pails	2	$0.50	1.00
	Total value cattle equipment			51.75
3	Swine equipment—			
	Feed cooker	1		18.00
	Self feeder	1		4.00
	Troughs (home made)	8		12.00
	Total value swine equipment			34 00
4	Hauling and driving equipment—			
	Automobile, touring, 1919	1		500 00
	Top buggy (old)	1		5.00
	Wagons, farm, 2-horse	2		60.00
	Truck with platform	1		25.00
	Bobsled	1		15.00
	Springs, bolster ...sets	2		3 00
	Racks, wagon (hay and stock)	2		20.00
	Robe, horsehide	1		15.00
	Shoe, wagon	1		.50
	Slipboat, homemade	1		3.00
	Total value hauling and driving equipment			646.50
5 and 6	Crop equipment—			
	Tractor, 10 to 25 horsepower, bought 1917, cost $1,000			600.00
	Plow, engine gang, bought 1917	1		130.00
	Disk, engine, 32-double	1		80.00
	Harrow, engine, 6-section, 17 feet	1		50.00
	Plows, walking, 12-inch	2		5.00
	Harrow, spring tooth	1		4.00
	Roller, steel, 8 feet	1		6.00
	Weeder, 8 feet	1		4.00
	Planter, bean	1		5.00
	Planter, potato	1		25.00
	Drill, grain, 11-hoe	1		50.00
	Sower, lime (1/3 interest)	1		5.00
	Spreader, manure	1		40.00
	Seeder, grass	1		5.00
	Cultivators, bean, 2-horse	1		2.00
	Cultivators, single	1		1.50
	Cultivators, 2-rows	1		10.00
	Binder, grain (½ interest)			40.00
	Mower, 5-foot	1		35.00
	Rake, hay, side-delivery	1		25.00
	Spray rig, power, 200-gallon tank	1		250.00
	Digger, potato	1		25.00
	Grader, apple and potato	1		20.00
	Ladders (varying sizes)	9		10.50
	Mill, fanning	1		2.50
	Puller, bean	1		2.00
	Crates, picking	400	.11½	45.00
	Bags, picking	1		.50
	Bags, grain	50	.10	5.00
	Barrels, cider	2	.75	1.50
	Cradle, grain	1		.50
	Forks, barley	1		.45
	Forks, hay	4	.25	1.00
	Hoes	4	.25	1.00
	Press, apple barrel	1		.25
	Stencil, apple barrel ...sets	1		.75
	Saws, pruning	2	.50	1.00
	Shears, pruning	1		.50

A. *Sample of a complete farm inventory on a 125-acre farm in western New York*—Con.

INVENTORY OF FARM PROPERTY ON THE PINE TREE FARM, MAR. 1, 1920.

Page of property book.	Property.	Quantity.	Price.	Value.
5 and 6	Equipment (implements, tools, etc.)—Continued.			
	Crop equipment—Continued.			
	Scoop, grain	1		$0.25
	Scythes	1		.50
	Drier, seed corn, homemade	1		4.00
	Total value crop equipment			1,494.70
7	Shop equipment—			
	Anvil, blacksmith (with hardie, etc.)	1		3.50
	Bit, ½-inch	1		.20
	Brace and bits	1 sets		1.25
	Chisel, wood, ¾-inch	1		.25
	Drawshave	1		.25
	Forge, blacksmith	1		2.00
	Grinder, tool, emery	1		5.00
	Grindstone	1		.50
	Hammers, blacksmith 00	2	$0.05	.10
	Hammers, claw	1		.20
	Pincers, blacksmith	2 sets	.25	.50
	Plane, wood, jack	1		.15
	Saw, hack, with blades	1		1.00
	Saw, hand	2	.50	1.00
	Sledge hammer, iron	1		1.00
	Snips, tinners	1 pairs		.25
	Square, steel, 2-foot	1		.50
	Square, bevel	1		.25
	Stove in shop (old)	1		2.00
	Swivel	1		.25
	Vise, bench	1		1.00
	Wrench, machine, 18-inch (new)	1		2.00
	Wrench, pipe, 14-inch (old)	1		.25
	Total value shop equipment			23.40
8	Other special purpose equipment—			
	Evaporator, maple sirup, 11-barrel	1		60.00
	Buckets, and spiles, sap	425	.11¾	50.00
	Jugs, sirup	15	.10	1.50
	Saws, ice	2		1.25
	Machine, concrete	1		75.00
	Mower, lawn	1		2.00
	Can, gasoline	1		.25
	Can, oil	1		.75
	Axes	1		.50
	Chain, log	2	.75	1.50
	Desk, office	1		14.00
	Saw, crosscut	1		.50
	Scales (in barn) platform	1		14.00
	Truck, bag	1		1.00
	Total value other special purpose equipment			222.25
8	General purpose equipment—			
	Block and tackle	1		1.00
	Crowbars	2	.25	.50
	Forks, pitch	1		.40
	Mattock	1		.50
	Pickax	1		.20
	Shovels	4		.75
	Spade	1		.25
	Wheelbarrow	1		.50
	Lantern, gasoline	1		6.00
	Lantern, oil	2		2.00
	Total value general purpose equipment			12.10
9	Farm produce:			
	Barley	75 bushels	1.50	112.50
	Oats	100 do	1.00	100.00
	Wheat	400 do	2.50	1,000.00
	Rye	20 do	1.50	30.00
	Beans	6 do	3.33	20.00
	Corn, ear	191 bushels of ears	.90	171.90
	Corn, seed	21¾ bushels	4.00	87.00
	Potatoes, seed	1,000 do	3.10	3,100.00
	Potatoes, market	650 do	2.15	1,397.50

A. *Sample of a complete farm inventory on a 125-acre farm in western New York*—Con.

INVENTORY OF FARM PROPERTY ON THE PINE TREE FARM, MAR. 1, 1920—Continued.

Page of property book.	Property.	Quantity.	Price.	Value.
9	Farm produce—Continued.			
	Straw....tons..	2	$2.50	$5.00
	Fodder corn....do....	½	10.00	5.00
	Hay, mixed....do....	14	20.00	280.00
	Total value farm produce....			6,308.90
10	Purchased feeds and supplies:			
	Bran....pounds..	600	2.50	15.00
	Middlings....do....	200	3.50	7.00
	Tankage....do....	1,200	5.00	60.00
	Salt....ton..	⅛	8.00	1.00
	Apple barrels....	39	.60	23.40
	Alfalfa seed, Grimm....bushel..	½	28.00	14.00
	Oil, kerosene (fuel for tractor)....gallons..	320	.17½	56.00
	Oil, motor and cylinder....do....	50	.50	25.00
	Gasoline....do....	10	.28	2.80
	Cement....bags..	2	.75	1.50
	Lumber....feet..	200	4.00	8.00
	Total value purchased feed and supplies....			213.70
11	Growing crops:			
	Wheat, Field A....acres..	19.3	12.70	248.92
	Winter pruning, Field I....do....	2.83	20.00	76.60
	Hay, Field K....do....	15.7	3.00	47.10
	Winter plowing, Field L (part)....do....	5.00	4.00	20.00
	Total value growing crops....			392.62
11	Accounts and notes receivable:			
	Jas. Smith, for 2 pigs....			16.00
	Henry Wilson, for 10 bushels potatoes....			30.00
	Note, H. K. Hallock, for 1 cow....			125.00
	Total accounts and notes receivable....			171.00
11	Cash on hand and in bank....			257.61
12	Liabilities:			
	Mortgage on farm....			8,000.00
	Smith's store for groceries and supplies....			26.00
	Note at bank, due May 4....			200.00
	Total liabilities....			8,226.00

SUMMARY OF INVENTORIES.

12	Resources:		
	Land....		$11,209.12
	Buildings....		8,349.00
	Other improvements....		265.00
	Work stock....		400.00
	Cattle....		415.00
	Swine....		900.00
	Poultry....		80.00
	Equipment:		
	Horse....	$72.05	
	Cattle....	51.75	
	Swine....	34.00	
	Hauling and driving....	646.50	
	Crop....	1,494.70	
	Shop....	23.40	
	Other special purpose....	222.25	
	General purpose....	12.10	
			2,556.75
	Farm produce....		6,308.90
	Purchased feeds and supplies....		213.70
	Growing crops....		392.62
	Accounts and notes receivable....		171.00
	Cash on hand and in bank....		257.61
	Total value farm resources....		31,518.70
	Total liabilities....		8,226.00
	Net farm worth....		23,292.70

B. RULES FOR ESTIMATING QUANTITIES OF PRODUCE IN BULK.

[All measurements in feet and tenths of a foot.]

To measure wheat, oats, barley, rye, buckwheat, and shelled corn in bins.—Multiply inside length and width of bin together, then multiply that product by the average depth of grain in the bin. This gives the cubic feet, which divided by 5 and multiplied by 4 gives approximately the number of bushels of grain.

To measure ear corn in bins or cribs.—For structures with perpendicular sides, multiply inside length and width together, then multiply that product by the average depth of the corn in the bin or crib. Where the crib or bin sides are flared or sloped the width must be determined by measuring both at floor and top of the corn pile. Adding these two widths together and dividing by two gives the average width measurement, which in such cases is the correct one to use. Dividing the cubic feet by 5 and multiplying by 2 gives the approximate quantity in bushels of shelled corn. For corn in the shuck, divide by 7 and multiply by 2. Multiplying the cubic feet by 8 and pointing off two decimal places gives the approximate quantity in "barrels" of ear corn. A "barrel" of ear corn is equal to 5 bushels of shelled corn or 10 bushels of ear corn, and its legal weight is 350 pounds.

To measure hay, straw, and shredded stover in the mow.—Find the cubic feet by multiplying together the length, width, and average depth of the space occupied. The number of cubic feet in a ton will vary with the length of time the product has been stored. For inventorying purposes, figures based on storage for 5 months or more can be used. In general, it will be approximately accurate to use the following figures:

To get tons of hay, divide cubic feet by 550.

To get tons of straw, divide cubic feet by 625.

To get tons of shredded stover, divide cubic feet by 675.

To measure ricks.—Measure the distance from the ground on one side over the rick to the ground on the other side. To this add width of rick at ground. Multiply that sum by itself and multiply the product by the average length of the stack. For hay that has been stacked 5 months or more divide this last product by 75 and point off two decimal places to get the approximate number of tons.

To measure stacks.—Round stacks of forage vary so greatly in the relative proportions of height and diameter, as well as in shape, that no approximately accurate simple rule can be given. In some parts of the country it is customary to put a certain average quantity of forage into each stack. Where this is done the quantities can be approximated by counting the number of stacks and multiplying by the average quantity per stack. A rule which will give fairly close figures for average-shaped stacks is to measure the vertical distance from ground to bulge, and add to this figure $\frac{3}{4}$ the vertical distance from bulge to top; multiply this sum by the circumference of the stack at the bulge and multiply the resulting product by the circumference at the ground. Dividing this last product by 12 will give the number of cubic feet, approximately. (For more exact information on measuring hay in stacks, see Circular 67, Office of the Secretary, "Measuring Hay in Ricks and Stacks.") For hay in uncovered ricks and stacks the number of cubic feet in a ton will vary from 400 to 500.

A tape line divided into feet and tenths will facilitate the measuring and computations. Where one is not available the following table, converting inches and quarter-inches into tenths of a foot, will be of assistance:

Conversion of inches into tenths of a foot.

Inches.	Tenths of a foot.	Inches.	Tenths of a foot.
0 to $\frac{1}{2}$	0	$5\frac{1}{2}$ to $6\frac{1}{2}$	5
$\frac{3}{4}$ to $1\frac{1}{4}$	1	$6\frac{3}{4}$ to $7\frac{1}{4}$	6
2 to $2\frac{3}{4}$	2	8 to 9	7
3 to 4	3	$9\frac{1}{2}$ to 10	8
$4\frac{1}{4}$ to $5\frac{1}{4}$	4	$10\frac{1}{4}$ to $11\frac{1}{4}$	9

Minimum legal weights of produce.—(For use where weighing is done when inventorying.)

	Pounds.		Pounds.
Corn on the cob	70	Cotton seed	30
Corn, shelled	56	Potatoes	60
Wheat	60	Sweet potatoes	54
Oats	32	Corn meal	48
Rye	56	Onions	57
Barley	48	Apples	48
Buckwheat	48	Turnips	55
Peas	60	Beets	56
Beans	60	Carrots	50

C. HINTS ON ESTIMATING THE LIFE OF FARM IMPLEMENTS.

The useful life of farm implements is governed, in general, by several factors, among which are included quality of construction and design, climate, topography, soil condition, amount of use, and quality of maintenance. It will be necessary in each case for these factors to be considered in appraising. No exact rules can be given.

The following figures taken from a department publication will prove of interest in this connection:[1]

Average length of life of farm implements in western New York.

Implement.	Average years of life.	Average acres covered per year.	Implement.	Average years of life.	Average acres covered per year.
Walking plow	11.7	32.9	Cultivator:		
Sulky plow	8.1	30.9	1-row	14.0	16.9
Springtooth harrow	11.0	71.1	2-row	12.5	39.3
Spiketooth harrow	14.0	46.3	Cabbage transplanter	12.8	12.5
Disk harrow	13.0	35.2	Mower	14.8	28.0
Land roller	16.0	65.9	Hay rake	14.5	43.0
Grain drill	16.4	46.3	Hay tedder	14.0	21.6
Corn planter:			Bean harvester	12.9	16.9
1-row	11.7	4.1	Grain binder	15.4	35.2
2-row	11.0	8.2	Corn binder	10.8	21.1

These figures should be more or less useful in appraising machinery. It should be borne in mind that the area from which these figures were secured has a moist climate, is mostly level, and that the soil types are generally rather heavy and reasonably free from stones. Where the soil is either very light or unusually heavy or stony due allowances should be made.

The figures shown in the following table will be found useful in placing values on implements. To use the table, find in the left-hand column the figure indicating probable total length of life of the implement under consideration, then on the bottom line find the figure representing the years it has already been used. The figure at the junction of column with line will represent the value of the implement at the end of the year expressed in per cent of the original cost. For example, for a machine costing $10 that has a probable total life of 15 years and has been used for 7 years, find in the left-hand column the figure 15, and on the bottom line the figure 7. At the place where the line opposite the 15 and the column above the 7 come together will be found the figure 53.3, which means that after 7 years of use the implement is worth 53.3 per cent of its first cost, or in this case $5.33.

[1] Mowry, H. H., Machinery Cost of Farm Operations in Western New York: U. S. Department of Agriculture Bulletin 338.

Table showing values of farm machines lasting up to 30 years at the end of each year. In terms of percentage of first cost.

Length of life. Years.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1																													
2	50.0																												
3	66.7	33.3																											
4	75.0	50.0	25.0																										
5	80.0	60.0	40.0	20.0																									
6	83.3	66.7	50.0	33.3	16.7																								
7	85.7	71.4	57.1	42.9	28.6	14.3																							
8	87.5	75.0	62.5	50.0	37.5	25.0	12.5																						
9	88.9	77.8	66.7	55.5	44.4	33.3	22.2	11.1																					
10	90.0	80.0	70.0	60.0	50.0	40.0	30.0	20.0	10.0																				
11	90.9	81.8	72.7	63.6	54.5	45.4	36.4	27.3	18.2	9.1																			
12	91.7	83.3	75.0	66.7	58.3	50.0	41.7	33.3	25.0	16.7	8.3																		
13	92.3	84.6	76.9	69.2	61.5	53.8	46.1	38.4	30.8	23.1	15.4	7.7																	
14	92.8	85.7	78.5	71.4	64.3	57.1	50.0	42.8	35.7	28.6	21.4	14.3	7.1																
15	93.3	86.7	80.0	73.3	66.7	60.0	53.3	46.7	40.0	33.3	26.7	20.0	13.3	6.7															
16	93.8	87.5	81.3	75.0	88.8	62.5	56.3	50.0	43.8	37.5	31.3	25.0	18.8	12.5	6.3														
17	94.1	88.2	82.3	76.4	70.6	64.7	58.8	52.9	47.0	41.2	35.3	29.4	23.5	17.6	11.8	5.9													
18	94.4	88.9	83.3	77.8	72.2	66.7	61.1	55.6	50.0	44.4	38.9	33.3	27.8	22.2	16.7	11.1	5.6												
19	94.7	89.4	84.2	78.9	73.7	68.4	63.1	57.9	52.6	47.4	42.1	36.9	31.6	26.3	21.1	15.8	10.5	5.3											
20	95.0	90.0	85.0	80.0	75.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0										
21	95.2	90.5	85.7	81.0	76.2	71.4	66.7	61.9	57.1	52.4	47.6	42.9	38.1	33.3	28.6	23.8	19.0	14.3	9.5	4.8									
22	95.4	90.9	86.4	81.8	77.3	72.7	68.2	63.6	59.1	54.5	50.0	45.5	40.9	36.4	31.8	27.3	22.7	18.2	13.6	9.1	4.6								
23	95.7	91.3	87.0	82.6	78.3	73.9	69.6	65.2	60.9	56.5	52.2	41.8	43.5	39.1	34.8	30.4	26.1	21.7	17.4	13.0	8.7	4.4							
24	95.8	91.7	87.5	83.3	79.2	75.0	70.8	66.7	62.5	58.3	54.2	50.0	45.8	41.7	37.5	33.3	29.2	25.0	20.8	16.7	12.5	8.3	4.2						
25	96.0	92.0	88.0	84.0	80.0	76.0	72.0	68.0	64.0	60.0	56.0	52.0	48.0	44.0	40.0	36.0	32.0	28.0	24.0	20.0	16.0	12.0	8.0	4.0					
26	96.2	92.3	88.5	84.6	80.8	76.9	73.1	69.2	65.4	61.5	57.7	53.8	50.0	46.2	42.3	38.5	34.6	30.8	26.9	23.1	19.2	15.4	11.5	7.7	3.8				
27	96.3	92.6	88.9	85.2	81.5	77.8	74.1	70.4	66.7	63.0	59.3	55.6	51.9	48.2	44.4	40.7	37.0	33.3	29.6	25.9	22.2	18.5	14.8	11.1	7.4	3.7			
28	96.4	92.9	89.3	85.7	82.1	78.6	75.0	71.4	67.9	64.3	60.7	57.1	53.6	50.0	46.4	42.9	39.3	35.7	32.1	28.6	25.0	21.4	17.9	14.3	10.7	7.1	3.6		
29	96.6	93.1	89.7	86.2	82.8	79.3	75.9	72.4	69.0	65.5	62.1	58.6	55.2	51.7	48.3	44.8	41.4	37.9	34.5	31.0	27.6	24.1	20.7	17.2	13.8	10.3	6.9	3.4	
30	96.7	93.3	90.0	86.7	83.3	80.0	76.7	73.3	70.0	66.7	63.3	60.0	56.7	53.3	50.0	46.7	43.3	40.0	36.7	33.3	30.0	26.7	23.3	20.0	16.7	13.7	10.0	6.7	3.3
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

PERCENTAGES.

Years of use.